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## Rail Connections between Poland and Neighbouring States

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**Abstract:**

**Purpose:** The aim of the study was to identify differences between the use of Poland's rail links with neighbouring countries in passenger traffic.

**Design/Methodology/Approach:** The research investigated the use of railway border points in Poland for passenger traffic. The scope of the analysis included the status in 2024 and the changes that have occurred since 2004, when Poland became a member of the European Union. The study was based on an analysis of train timetables and a literature search to determine the context of the suspension or reactivation of connections through a particular border point.

**Findings:** If we compare the years 2004 and 2024, out of 37 railway border points, there was an increase in passenger trains at 20, a decrease at 7, while at 6, there was no change and the remaining 4 were closed to passenger traffic throughout the analysis period. There was a clear improvement in the offer at the German, Czech and Ukrainian borders. In contrast, services to Belarus and Russia were completely discontinued for geopolitical reasons. In the case of Slovakia, the number of trains and active border points fluctuated during the analysis period.

**Practical Implications:** The analysis carried out in conjunction with the results of previous studies on passenger transport in Poland indicate that a pro-railway policy of border regions can also influence the development of cross-border connections – subject to the fact that this is an internal EU border.

**Originality/Value:** This article is part of my long-term research into the functioning of rail transport in Poland. Twenty years of Poland's membership in the EU inspired this analysis and an update of earlier research conducted by various authors in this field.

**Keywords:** Border connections, international connections, passenger transport, Poland, rail transport.

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## 1. Introduction

Poland's accession to the European Union (EU) in 2004 and then to the Schengen area in 2007 resulted in an increase in the flow of people at the borders with other EU countries, including the possibility of daily commuting for work purposes and services on the other side of the border. The response to the growing transport demand should be to improve the public transport offer. The development of rail transport, due to its low external costs, plays an important role in European transport and climate policy (White Paper, 2011).

This article was written in the context of the 20th year of Poland's membership in the European Union. The subject of the study was the use of railway lines crossing the Polish border by passenger trains and the changes that have taken place in this respect since 2004.

## 2. Literature Review

The issues of the operation of international rail connections in Europe are widely discussed in the literature. More recent publications in this area include: Bálint (2019), Cavallaro i Dianin (2020; 2019), Endemann (2019), Gamon i Gómez (2019), Seidenglanz *et al.* (2021), Witlox *et al.* (2022). With regard to Poland, the condition of the railway infrastructure and changes in passenger traffic at the borders have been discussed by Graff – e.g., with Germany (2017a), with the Czech Republic and Slovakia (2017b), with Lithuania (2017c) and with Ukraine (2017d).

Bocheński (2021) also included borderland connections in his research on passenger train traffic in Poland. Furthermore, an analysis of international rail connections of provincial cities in Poland and capitals of administrative regions in neighbouring countries in the 2019/2020 timetable was presented by Majewski (2023). The above-mentioned publications were used to analyse the changes that have taken place in the period under study with regard to rail connections crossing the Polish border. However, there have been significant changes since then, particularly on the eastern border.

## 3. Methodology

The research comprised a literature search on rail connections in the Polish border region and an analysis of train timetables. The characteristics of the railway lines crossing the Polish border are presented, including electrification and the number and gauge of tracks. A comparison is then made of the railway connections crossing the state border operating in selected years.

Publicly available train timetables (<https://rozklad-pkp.pl/>) and the electronic HAFAS (HaCon Fahrplan-Auskunfts-System) used by the Polish State Railways

(PKP) were used. A timetable valid on weekdays during the low season<sup>2</sup> and additionally for services operated only seasonally at weekends during the summer is included. On the basis of a search of scientific publications and the trade press, the changes taking place in rail connections between Poland and its neighboring countries are indicated.

Poland's accession to the EU and then to the Schengen area has significantly influenced the ease of border crossing, therefore lines crossing internal and external EU borders were differentiated. Attention was also paid to whether a given border point is used year-round or seasonally and what type of connections these were – international<sup>3</sup> or transborder-only<sup>4</sup>.

## **4. Results**

### **4.1 Railway Infrastructure**

There were a total of 37 railway border points on the Polish border and a further 2 were closed. In addition, 3 border points were located on lines with no direct connection to the Polish railway network (Zittau-Porajów-Hradec nad Nisou - connecting Germany with the Czech Republic and Świnoujście-Ahlbeck on the Polish-German border). These 3 points were omitted from the analysis.

On the eastern and northern borders, there was a change in track gauge from European (1435 mm), to Russian (1520 mm). European track reached from Poland to, among others: Königsberg and Instruch in Russian Federation, Kaunas in Lithuania, Hrodna and Brest in Belarus, Rava-Ruska, Mostiska and Khyriv in Ukraine. On long-distance connections linking towns in the hinterland of Poland and the above-mentioned countries, it was necessary to change bogies (so-called wagon conversions) or to use wagons equipped with a self-tracking system. The alternative was to change at tangential stations of both gauges. In addition, with the exception of the Polish-Lithuanian border, it was an external EU border, which necessitated border checks and customs control.

At the border with Germany, there was a change in the voltage of the overhead contact line – in Poland and the border areas of the Czech Republic, Slovakia and Ukraine, a 3 kV DC power supply was used, while in Germany it was 15 kV, 16.7 Hz AC. This necessitated the replacement of locomotives or the use of dual-system

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<sup>2</sup>*Timetable in force on 15.05.2024 (Wednesday) and 12.05.2004 (Wednesday).*

<sup>3</sup>*International - connecting inland locations with trains of the express or fast category, operated as a public service (agreement with the minister responsible for transport matters) or on a commercial basis.*

<sup>4</sup>*boundary or transborder - connect border regions and are a supplement to the regional offer (trains included in the passenger category), which are organised on the Polish side by voivodship marshals.*

locomotives or multiple units. Electrified lines facilitated the running of long-distance international trains.

More than 2/3 of the lines crossing the Polish border were not electrified. At the same time, single-track lines dominated (Table 1). Double-tracked and at the same time electrified, there were railway lines crossing the borders at the following points:

- with Germany: Ślubice/Frankfurt Oder and Węglińiec/Horka,
- with the Czech Republic: Chałupki/Bohumín and Zebrzydowice/Petrovice u Karviné,
- with Ukraine: Medyka/Mostyska – one track each 1435 and 1520 mm,
- with Belarus: Terespol/Brest<sup>5</sup> and Kuźnica/Bruzhi – 1435 mm electrified track and 1520 mm non-electrified track

Single-track but electrified were the railway lines running through the border points on the border with the Czech Republic: Międzyzlesie/Lichkov and Cieszyn/Český Těšín and with Slovakia: Zwardoń/Skalité and Leluchów/Čirč.

**Table 1.** Railway lines crossing the Polish border

Type of border	State	Length of border (km)	Number of lines crossing the state border						
			total	electrified			non-electrified		
				single	two	total	single	two	total
<b>total</b>		3,070	37	4	8	12	20	5	25
EU internal border	<b>EU states</b>	<b>1,907</b>	<b>24</b>	<b>4</b>	<b>4</b>	<b>8</b>	<b>14</b>	<b>2</b>	<b>16</b>
	Germany	467	10*	-	2	2	6	2	8
	Czech Republic	796	10*	2	2	4	6	-	6
	Slovakia	541	3	2	-	2	1	-	1
	Lithuania	103	1	-	-	-	1	-	1
EU external border	<b>other states</b>	<b>1,163</b>	<b>13</b>	-	<b>4</b>	<b>4</b>	<b>6</b>	<b>3</b>	<b>9</b>
	Ukraine	535	7	-	2	2	5	-	5
	Belarus	418	4	-	2	2	1	1	2
	Russian Federation	210	2	-	-	-	-	2	2

**Note:** \* excluding lines not directly connected to the Polish rail network.

**Source:** Own elaboration on the basis Open Rail Map (2024).

It is worth mentioning that the railway infrastructure at the German border was modernised during the period under analysis. This included sections of the railway lines Szczecin-Angermünde, Węglińiec-Horka and Zgorzelec-Görlitz. Ultimately, the railway lines leading from Poland to Angermünde and Görlitz in Germany are to be electrified. In future, the connection between Poland and Lithuania is also to be double-tracked and electrified. There are also plans to electrify the Dorohusk-Kowel section of the Polish-Ukrainian border.

<sup>5</sup>Two railway bridges over the Bug River, single-track with 1435 and 1520 mm gauge splices.

## 4.2 Rail Connections

In 2024, 25 railway border points were used for passenger traffic, of which 3 were used only in the summer season. Only foreign railway transit traffic used to pass through 4 of them. Between 2004 and 2024, the restoration of passenger rail traffic was evident on 7 lines on the EU's internal borders, including 6 with the Czech Republic (Table 2, Figure 1).

In addition, commercial stops were introduced for transit trains running through Poland from 2005 for German trains at Krzewina Zgorzelecka and from 2007 for Czech trains at Głuchołazy.

During the entire period under analysis, 7 border points were used exclusively for freight traffic: one each with Germany, the Czech Republic, Belarus, the Russian Federation and two with Ukraine. In contrast, a further two, one each with Belarus and Ukraine, were completely closed during the period under analysis.

**Table 2.** Number of rail border crossing points in passenger traffic in selected years

Type of border	State	Number of railway border crossing points				
		all existing	operational in passenger traffic			
			2004	2010*	2020*	2024
total		37	21 <sup>a</sup>	22 <sup>a</sup>	21 <sup>a</sup>	2 <sup>af</sup>
EU internal border	EU states	23	14 <sup>a</sup>	16 <sup>a</sup>	17 <sup>a</sup>	22 <sup>af</sup>
	Germany	10	8 <sup>b</sup>	8 <sup>b</sup>	8 <sup>b</sup>	9 <sup>b</sup>
	Czech Republic	10	3 <sup>b</sup>	5 <sup>b</sup>	8 <sup>bc</sup>	9 <sup>bc</sup>
	Slovakia	3	3 <sup>c</sup>	3 <sup>c</sup>	1	3 <sup>e</sup>
	Lithuania	1	1	1	1 <sup>d</sup>	1
EU external border	other states	13	7	6	4	3
	Ukraine	7	3	3	2	3
	Belarus	4	3	2	2	-
	Russian Federation	2	1	1	-	-

**Note:** \* in the first quarter of the year based on the research of Bocheński (2021).

<sup>a</sup> including 4 were used only in transit traffic organised by a foreign railways,

<sup>b</sup> including 2 were used only in transit traffic organised by a foreign railways,

<sup>c</sup> including one was used only seasonally, <sup>d</sup> was used only at weekends,

<sup>e</sup> including 2 were used only seasonally, <sup>f</sup> including 3 were used only seasonally.

**Source:** Own elaboration on the basis of Train timetable of Polish State Railways (2024), System HAFAS PKP 2003/2004 (2003), Bocheński (2021).

After 2010, there was an increase in the number of connections – mainly to the Germany and Czech Republic. On the border with Ukraine, passenger traffic remained at a similar level until 2022, after which there was an expansion of connections.

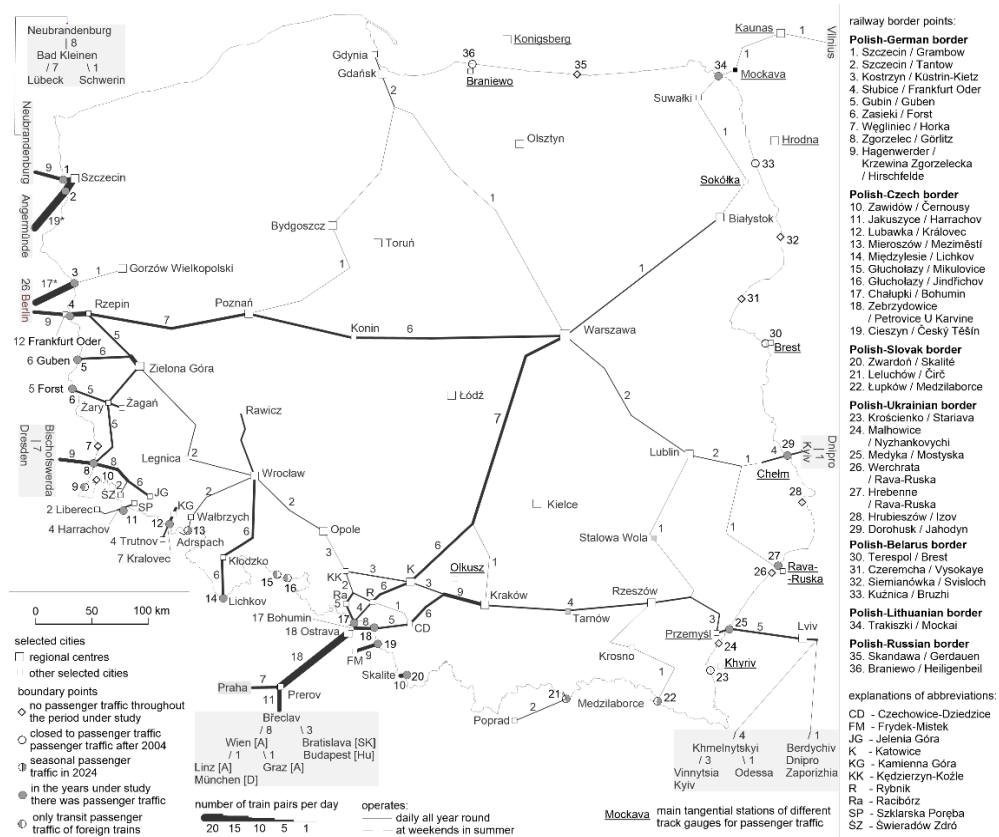
On the border with Belarus and the Russian Federation, rail traffic was gradually reduced until it was completely suspended (Table 3, Figure 1).

**Table 3.** Number of train connections running across Polish borders on weekdays in the low season in selected years

Type of border	State	2004	2010	2020	2024
total		93	93	114	170
internal border	EU states	70	95	157	154
	Germany	48	62	111	92
	Czech Republic	8	28	43	51
	Slovakia	12	4	3	10
	Lithuania	2	1	-	1
external border	other states	23	19	13	10
	Ukraine	6	6	5	10
	Belarus	16	12	8	-
	Russian Federation	1	1	-	-

**Source:** Own elaboration on the basis of Train timetable of Polish State Railways (2024), System HAFAS PKP (2003, 2009), Bocheński (2021), Open Rail Map (2024).

**Figure 1.** Rail border points and passenger train traffic across the Polish border in 2024



**Source:** Own elaboration on the basis of Train timetable of Polish State Railways (2024), Open Rail Map (2024).

On the German-Polish border, the most important border point was Słubice/Frankfurt Oder, through which all trains from Poland to the German capital were running in 2024 (Figure 1). The concentration of long-distance international services through this border point was due to its location on an important east-west international artery, with good performance and fully electrified.

On the other lines, only regional border trains ran. Görlitz-Zittau trains, stopping at Krzewina Zgorzelecka, and the Zittau-Liberec connection between Germany and the Czech Republic, without stopping at the disused Porajów station on Polish territory, ran in transit through Poland. In addition, there was a line to Świnoujście from the west, rebuilt in 2008, operated by the German railways UBB. Due to the modernisation of the railway line between Szczecin and Angermünde from 2022 and Kostrzyn-Kietz from 2021-2024, a replacement bus service was in operation.

On the border with the Czech Republic, international trains used two border points: Chałupki/Bohumín and Zebrzydowice/Petrovice u Karvine, through which international trains ran to Praha, Wien, Bratislava, Budapest and München, among others (Figure 1). In the period under analysis, there was an increase in the importance of the line via Chałupki, which took over some of the connections previously running through Zebrzydowice.

This was indirectly due to modernisation works carried out on the Rybnik-Chałupki railway line and works carried out on the Katowice-Zebrzydowice line. In contrast, the remaining border points were used by regional boundary trains, of which one was used only seasonally. Czech trains from Krnov to Jeseník with a stopover in Głuchołazy were in transit through Polish territory. In the period under analysis, passenger traffic was restored on three lines across the Polish-Czech border: via Lubawka in 2008, between Szklarska Poręba and Harrachov<sup>6</sup> in 2010 and via Mieroszów in 2018. After a pause, trains connecting Polish and Czech Cieszyn were also launched. In all four cases, these were transborder regional trains.

At the border with Slovakia, passenger traffic was reduced during the period under analysis. The number of connections fell dramatically at one point, while at the same time there was a concentration of traffic on the line via Zwardoń. In 2024, only local trains ran through all 3 border points, including two cases where traffic was only seasonal. This phenomenon can be partly explained by a reduction in the offer of rail services in Slovakia.

At the border with Lithuania, there was a change of track gauge – it was possible to change the gauge of the wagons at Mockava and Šeštokai stations, and to change between trains also at Kaunas. During the analysed period, passenger traffic was stopped and resumed. Due to the modernization of the railway line in Lithuania, it was completely stopped between 2013 and 2016 (Graff, 2017c). Subsequently,

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<sup>6</sup>A section of this railway line had been closed since 1945.

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weekend regional trains Białystok-Kaunas (on normal track) were launched and ran until March 2020 and in the summer of 2022, while long-distance trains connecting the two countries on the Kraków-Warsaw-Kaunas-Vilnius route with a change at the Lithuanian Mockava station were reinstated in December 2022.

Until 2020, the number of rail services between Poland and Ukraine remained at a similar level. However, the number of active border crossings changed. The border crossing points Hrebennie/Rava-Ruska and Krościenko/Starzhava were only open for part of the period under study.

In 2022, rail transport between Poland and Ukraine intensified. During the first year of the Russian-Ukrainian war, special humanitarian trains ran to evacuate people from Ukraine. These ran, among other things, using the LHS broad gauge freight line running through Hrubieszów to Sławków in the Upper Silesian-Zagłębian conurbation reaching Olkusz station (*Specjalny pociąg...*, 2022). Connections with an interchange from a standard gauge train to a broad gauge train or vice versa were launched at Przemyśl and Chelm stations in Poland and Rava-Ruska in Ukraine.

In 2024, it was possible to take a direct train from Przemyśl to important Ukrainian cities such as Lviv, Ternopil, Khmelnytskyi, Vinnytsia, Kyiv, Dnipro, Zaporizhia and Odesa, and from Chelm to Rivne, Kyiv and Dnipro. At the same time, trains from the Czech Republic and Austria started running to Przemyśl, significantly improving travel between Ukraine and Western Europe. In addition, as part of the Warsaw-Lviv connection, there was a transfer from a Polish train to a Ukrainian train at Rava-Ruska.

Rail connections with Belarus were gradually reduced during the analysed period, linked to tensions between the two countries and the aggressive policy of the Belarusian authorities towards Poland. Border traffic at the Czeremcha border crossing was halted in 2011, and at Kuźnica Białostocka and Terespol in March 2020 (Fiszler, 2023ab). Previously, there were direct connections between Warsaw, Minsk and Moscow, as well as transboundary connections to Grodno and Brest.

A train service to the Königsberg region of the Russian Federation operated between Gdynia and Königsberg. Its frequency was reduced in 2010 and it was completely suspended in 2013 (Bochenski, 2018).

## 5. Discussion

The problem of the development of international connections in the European Union did not only concern Poland. European Court of Auditors (2018) indicates that one of the reasons for this state of affairs was the lack of an organiser or coordinator of international passenger services at the EU level. In the case of Poland, this is also confirmed by Majewski's (2023) research, which points to the lack of a coherent network of connections at supra-national level.



Inter-industry competition in transport and the development of air and bus connections is also a problem. Most of the demand for international connections from Poland and some domestic connections have been taken over by low-cost air and bus carriers, i.e. FlixBus (Taylor, 2018).

The development of transborder transport can be supported at the regional level. As Bocheński (2021), among others, points out in Poland, the involvement of voivodeship governments has a significant impact on the offer of regional trains, including transborder traffic.

## **6. Conclusions**

The most extensive rail infrastructure was on the German-Polish border, through which most trains also ran. A factor influencing the operation of international long-distance connections was the electrification of the railway lines. This translated into the volume of rail traffic at the border points through which the electrified lines ran.

At the borders with the Russian Federation, Belarus, Ukraine and Lithuania, the organisation of long-distance services was hampered by the different track gauges. These countries, with the exception of Lithuania, were not members of the EU which necessitated passport and customs controls. In the case of the border with Germany, Czech Republic and Slovakia, both problems did not exist.

The operation of rail connections crossing the state border constituting the external border of the EU was determined by state policy. Strained diplomatic relations between neighbouring states translated into restrictions on public transport. The aggressive policies of Belarus and the Russian Federation resulted in rail traffic with these countries being restricted and eventually services to the Königsberg region were discontinued in 2013 and to Belarus in 2020.

The outbreak of war in Ukraine as a result of Russian aggression resulted in increased demand for transport to Poland. Rail connections took over air traffic and Poland became a frontline country and logistical hub for the fighting Ukraine. Special humanitarian trains were launched and the offer of regular rail connections between the two countries improved. At the same time, there were changes in the organization – some direct connections were abandoned in favour of transfer solutions at border stations, of which Przemyśl began to play the most important role.

In the case of the EU's internal borders, regional governments have had a strong influence on rail passenger services. An example is the development of the offer of connections on the Polish-Czech border in the Lower Silesian Voivodeship. The increase in the number of connections between Poland and the Czech Republic and

Germany concerned the capitals of these countries (international connections) and, in the case of the Czech Republic, also smaller towns located in the border areas.

## References:

- Bálint, L. 2019. The Visegrád Group and the railway development interest articulation in Central Eastern Europe. *Eastern Journal of European Studies*, 10(2), pp. 175-195.
- Bocheński T. 2021. Analiza porównawcza ruchu pociągów pasażerskich w Polsce w latach 2010 i 2020. *Transport Geography Papers of Polish Geographical Society*, 24(2), pp. 69-82.
- Bocheński, T. 2018. Rail transport between Poland and Russia. In: *Baltic Region – Region of co-operation 2018. Problems and Prospects of Cross-Border Co-operation along Russia's Western Fringe Area*. Kaliningrad: Baltic Federal University Immanuel Kant, pp. 224-237.
- Cavallaro, F., Dianin, A. 2019. Cross-border commuting in Central Europe: Features, trends and policies. *Transport Policy*, Issue 78, pp. 86-104.
- Dianin, A., Cavallaro, F. 2020. Efficiency of public transport for cross-border commuting: An accessibility-based analysis in Central Europe. *Journal of Transport Geography*, Issue 89.
- Endemann, P. 2019. Long-distance passenger rail services: Review and improvement. In: *Spatial and transport infrastructure development in Europe: Example of the Orient/East-Med Corridor*. Hannover: Akademie für Raumforschung und Landesplanung, pp. 156-174.
- European Court of Auditors. 2018. A European high-speed rail network: not a reality but an ineffective. Luxembourg, European Union Publications Office.
- Fiszer, K. 2023a. Kolejne wydłużenie zakazu przewozów pasażerskich na Białoruś – tym razem o miesiąc. *Rynek Kolejowy*, 17 April. Available at: <https://www.rynek-kolejowy.pl/wiadomosci/kolejne-wydłużenie-zakazu-przewozow-pasazerskich-na-bialorus--tym-razem-o-miesiac-112926.html> [Accessed 19 10 2024].
- Fiszer, K., 2023b. Koniec zakazu ruchu na Białoruś, ale pociągów i tak nie będzie. *Rynek Kolejowy*, 10 May. Available at: <https://www.rynek-kolejowy.pl/wiadomosci/konczy-sie-zakaz-ruchu-na-bialorus-ale-pociagow-i-tak-nie-bedzie-113232.html>.
- Gamon, W., Gómez, J.M.N. 2019. Main problems of railway cross-border transport between Poland, Germany and Czech Republic. *Sustainability*, 11(181), p. 1-10.
- Graff, M. 2017a. Komunikacja kolejowa na polsko-niemieckim pograniczu. *Technika Transportu Szynowego*, Issue 3, pp. 22-33.
- Graff, M. 2017b. Komunikacja kolejowa na pograniczu polsko-czeskim i polsko-słowackim. *Technika Transportu Szynowego*, Issue 4, pp. 16-26.
- Graff, M. 2017c. Komunikacja kolejowa pomiędzy Polską i Litwą. *Technika Transportu Szynowego*, Issue 6, pp. 45-52.
- Graff, M. 2017d. Komunikacja kolejowa pomiędzy Polską i Ukrainą. *Technika Transportu Szynowego*, Issue 7-8, pp. 55-71.
- Majewski, J. 2023. Pasażerskie połączenia kolejowe jako element sieci powiązań międzynarodowych polskich regionów. *Transport Geography Papers of Polish Geographical Society*, 26(1), pp. 88-98.
- Open Rail Map, 2024. Available at: <https://www.openrailwaymap.org/>.
- Seidenglanz, D. et al., 2021. Quo vadis, international long-distance railway services? Evidence from Central Europe. *Journal of Transport Geography*, 92(102998).

- Specjalny pociąg z uchodźcami z Ukrainy dotarł dzisiaj po szerokim torze do Olkusza, 2022. Kurier Kolejowy, 28 February. Available at: <https://kurier-kolejowy.pl/aktualnosci/39729/specjalny-pociag-z-uchodzcami-z-ukrainy-dotarl-dzisiaj-po-szerokim-torze-do-olkusza--video.html>.
- Stankiewicz, R., Stiasny, M. 2014. Atlas linii kolejowych Polski 2014. Rybnik: Eurosprinter.
- System HAFAS PKP 2003/2004, 2003. s.l.: HaCon.
- System HAFAS PKP 2009/2010, 2009. s.l.: HaCon.
- Taylor, Z. 2018. Ocena transformacji systemowej w polskim transporcie lądowym. Studia Komitetu Przestrzennego Zagospodarowania Kraju PAN, Volume 183, pp. 301-314.
- Train timetable of Polish State Railways, 2024. s.l.: Polskie Koleje Państwowe.
- White Paper. Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system, 2011. Brussels, 28.3.2011, COM(2011) 144 final.
- Witlox, F., Zwanikken, T., Jehee, L., Donners, B., Veeneman, W. 2022. Changing tracks: identifying and tackling bottlenecks in European rail passenger transport. European Transport Research Review, 14(7), pp. 1-12.